ENVIROLOGIX QUICKTOX KIT FOR QUICKSCAN AFLATOXIN QUANTITATIVE TEST

TABLE OF CONTENTS **PAGE**

GENERAL INFORMATION

The Envirologix QuickTox Kit for QuickScan Aflatoxin uses lateral flow test strip technology that provides quantitative aflatoxin test results. The test kit is GIPSA approved for aflatoxin testing of corn, wheat, sorghum, and soybean meal, with min/max conformance limits between 5 to 100 parts per billion (ppb). The test kit is designed to provide quantitative results from 5 to 30 ppb using standard assay principles and up to 100 ppb with an additional dilution procedure.

The instructions presented in this document cover only the procedure for performing the analytical test for official inspections. For questions regarding this procedure, contact Dr. Ajit Ghosh of the Technology and Science Division by phone at 816-891-0417 or email at Ajit.K.Ghosh@usda.gov.

Refer to the current policies and/or instructions issued by the Policies, Procedures, and Market Analysis Branch (PPMAB) of the Field Management Division for information on use of this test kit in official inspections including sampling, general sample preparation (e.g., grinding and dividing), reporting and certification of test results, laboratory safety, and hazardous waste management. For questions regarding these policies and/or instructions, contact Patrick McCluskey of PPMAB by phone at 816-659-8403 or email at Patrick.J.McCluskey@udsa.gov.

Approved Test Kit Information

Test Kit Vendor:	EnviroLogix Inc. 1-207-797-0300
Test Kit Name:	EnviroLogix QuickTox Kit for QuickScan Aflatoxin
Product Number:	AQ 109 BG
Effective Date of Instructions:	03/30/2015
Instructions Revision Number:	0
Conformance Range:	5 – 100 ppb
Number of Analyses to Cover Conformance Range:	2
Type of Service:	Quantitative
Supplemental Analysis:	No
Approved Commodities:	Corn, wheat, sorghum, and soybean meal.
Extraction method:	Add 100 mL (milliliter) 50% ethanol/50% distilled or deionized water (v/v) to a 50 grams ground sample. Shake on a mechanical shaker at 350 rpm for 1 minute.
Test Format:	Lateral flow strip
Detection Method:	QuickScan System (reader)

EXTRACTION PROCEDURES

1. **Extraction Procedures for corn, wheat, sorghum, and soybean meal**

   a. Transfer 50 ± 0.2 grams of ground sample into a sample cup for extraction.

   b. Add 100 mL of 50% ethanol/50% distilled or deionized water (v/v) and securely cap the extraction cup.

   c. Shake vigorously on a mechanical shaker at 350 rpm for 1 minute (or vigorously by hand for 1.5-2 minutes).

Shake mechanically or by hand

   d. After shaking, allow extraction mixture to settle for 5 to 7 minutes for a clear top layer to form so that 100 µL (microliter) extract may be easily pipetted omitting particulates. This is the sample extract and ready for testing.

   e. Proceed to **Test Procedure**s.

Note: 50% Ethanol may be purchased or made by dilution of ethanol in distilled or deionized water (1 part ethanol: 1 part water).

TEST PROCEDURES

1. **Sample Preparation for 5 to 30 ppb quantitation range for corn, wheat, sorghum, and soybean meal.**

   a. Using a calibrated pipette with new pipet tip, place 100 µL of Dilution Buffer (DB2) into a reaction vial.

   b. Using a new pipette tip add 100 µL of sample extract (the top layer of the sample extract, avoiding the particulates)

   c. Mix first by swirling with the pipette tip and then pipetting up and down 4 times.

Notes: Do not contaminate Buffer solution. Use new pipette tip for each measurement. Samples that are not thoroughly mixed and/or accurately pipetted will adversely affect test results. Do not reuse diluted samples.

   d. Proceed to Sample Analysis Procedures.

2. **Sample Preparation for 30 to 100 ppb quantitation range for corn only.**

   a. Place 200 µL of sample extract into a reaction vial containing 1000 µL of 50% ethanol/ 50% deionized water (v/v) (6-fold dilution). Mix thoroughly by pipetting up and down 4 times. This is the Diluted Sample Extract for testing.

   b. Using a calibrated pipette with a new pipette tip, place 100 µL of Dilution Buffer, DB2, into a reaction vial.

   c. With a new pipette tip, add 100 µL of the diluted sample extract to the reaction vial containing buffer solution and mix thoroughly by swirling with the pipette tip and then by pipetting up and down 4 times.

   d. Proceed to Sample Analysis Procedures.

3. **Sample Analysis Procedures.**

   To run the QuickTox test strip, allow refrigerated canister to come to room temperature before opening. Remove the QuickTox strips to be used. Avoid bending the strips. Reseal the canister immediately.

   a. Place a new test strip into the reaction vial containing Buffer solution and sample extract. The arrow tape on the end of the strip should be point into the reaction vial.

Place strip in vial

   b. The sample extract will travel up the strip. Reaction vials can stand on their own.

   c. Allow the strip to develop for 5 minutes. Immediately cut off and discard the bottom of the strip covered by the arrow tape. Insert test strip into the QuickScan reader for quantitation.

4. **Interpreting the Lateral Flow Test Strip with QuickScan Reader.**

Development of a Control Line within 5 minutes indicates that the strip has functioned properly. Any strip that does not develop a Control Line should be discarded. A second preparation of the extract (using a fresh buffer dilution) should be made and tested using a new test strip.

a. Place the test strip face down in the carrier with the barcoded end closest to the handle.

Place strip in QuickScan carrier

b. Insert the carrier into the reader and the strips are read by clicking on the "Read Test" area of the screen.

c. For quantitation between 30 to 100 ppb choose 1:6 under the dilution tab on QuickScan Results Screen. The system will correct for the 6 fold dilution.

REPORTING AND CERTIFYING TEST RESULTS

Refer to the current instructions issued by the Policies, Procedures, and Market Analysis Branch of the Field Management Division for reporting and certification of test results. For questions regarding these instructions, contact Patrick McCluskey (816-659-8403 or Patrick.J.McCluskey@udsa.gov).

EQUIPMENT AND SUPPLIES

1. Materials Supplied in Test Kits:

   a. Reaction vials

   b. Pipette tips

   c. Assay strips

   d. DB2 dilution buffer

2. **Materials Required but not Provided:**

   a. QuickTox QuickScan System. (ACC 131)

   b. Pipettor(s) capable of delivering 100, 200, and 1000 µL. MiniPet pipette (ACC041) may be used for 100 µL.

c. 50 % Ethanol, 4L bottle (ACC E26902-1X4)

d. Sample cups with lids (ACC 012-50)

e. Orbital/rotary shaker if mechanical shaking is used for extraction

f. Dilution set (extra tips and vials for 100 dilutions for test samples above 30ppb; ACC 080)

STORAGE CONDITIONS AND PRECAUTIONS

1. Storage Conditions.

Test kits should be refrigerated between 36°- 48°F.

2. Precautions.

a. Do not use the test kits beyond the noted expiration date.

b. Prolonged exposure to high temperatures may adversely affect the test results.

c. Do not open the desiccated canister until ready to use the strips.

d. Strips should be read promptly at 5 minutes development time

e. Samples should be tested promptly after dilution with buffer.

f. Make sure strips and buffer are at room temperature and ready to use before the dilution step

REVISION HISTORY

Revision 0 (03/30/2015)